USER'S GUIDE 2611

CASIO®

Getting Acquainted

Congratulations upon your selection of this CASIO watch. To get the most out of your purchase, be sure to carefully read this manual and keep it on hand for later reference when necessary.

Expose the watch to bright light to charge its battery before using it.
You can use this watch even as its battery is being charged by exposure to bright light.
• Be sure to read "Battery" of this manual for important information you need to know when exposing the watch to bright light.

If the display of the watch is blank...

If the **P.SAVE** indicator is flashing on the display, it means that the display is blank because the watch's Power Saving function has turned off the display to conserve power. Power Saving automatically turns off the display and enters a sleep state whenever your watch is left for a certain period where it is dark.
• The initial factory default setting is Power Saving on.
• The watch recovers from the sleep state if you move it to a well-lit area, if you press any button, or if you angle the watch towards your face for reading.
• **See "Power Saving Function" for more information.**

General Guide

• Press Ⓒ to change from mode to mode.
• In any mode, press Ⓛ to illuminate the display.
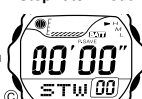
Timekeeping Mode

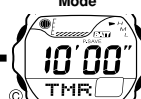Press Ⓒ.

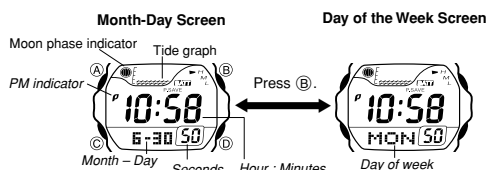**Moon / Tide Data Mode**

World Time Mode

Stopwatch Mode

Alarm Mode

Countdown Timer Mode

Timekeeping

Use the Timekeeping Mode to set and view the current time and date.

Month-Day Screen

Moon phase indicator
Tide graph
PM indicator

Press Ⓑ.

Day of the Week Screen

Month – Day
Seconds
Hour : Minutes
Day of week

• The tide graph shows tidal movements for the current date in accordance with the current time as kept in the Timekeeping Mode.
• The Moon phase indicator shows the current Moon phase in accordance with the current date as kept in the Timekeeping Mode.
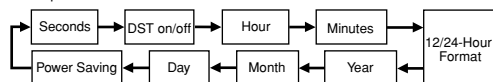
Important!

• Moon phase, tide graph data, and Moon/Tide Data Mode data will not be displayed properly unless the Timekeeping Mode current date and time settings and Home Site data are configured correctly. See "Home Site Data" for more information.

To set the time and date

1. In the Timekeeping Mode, hold down Ⓐ until the seconds start to flash, which indicates the setting screen.
2. Press Ⓒ to move the flashing in the sequence shown below to select other settings.

Seconds → DST on/off → Hour → Minutes → 12/24-Hour Format → Year → Month → Day → Power Saving → (Seconds)

3. When the setting you want to change is flashing, use Ⓓ and Ⓑ to change it as described below.

To change this setting	Perform this button operation
Seconds	Press Ⓓ to reset to **00**.
DST on/off	Press Ⓓ to toggle between Daylight Saving Time (**On**) and Standard Time (**OF**).
Hour, Minutes, Year, Month, Day	Use Ⓓ (+) and Ⓑ (–) to change the setting.
12/24-Hour Format	Press Ⓓ to toggle between 12-hour (**12H**) and 24-hour (**24H**) timekeeping.
Power Saving	Press Ⓓ to toggle Power Saving on (**On**) and off (**OF**).

4. Press Ⓐ twice to exit the setting screen.
• The first press of Ⓐ displays the GMT differential setting screen. Pressing Ⓐ again exits the setting screen.
• See "Power Saving Function" for details about configuring Power Saving settings.
• The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is applied in all modes.
• The day of the week is automatically displayed in accordance with the date (year, month, and day) settings.

Warning!
• The longitude, lunitidal interval, Moon phase indicator and tide graph data that appear on the display of this watch are not intended for navigation purposes. Always use proper instruments and resources to obtain data for navigation purposes.
• This watch is not an instrument for calculating low tide and high tide times. The tide graph of this watch is intended to provide a reasonable approximation of tidal movements only.
• CASIO COMPUTER CO., LTD. assumes no responsibility for any loss, or any claims by third parties that may arise through the use of this watch.


About This Manual

(Light)

• Button operations are indicated using the letters shown in the illustration.
• Each section of this manual provides you with the information you need to perform operations in each mode. Further details and technical information can be found in the "Reference" section.

Home Site Data

Moon phase, tide graph data, and Moon/Tide Data Mode data will not be displayed properly unless Home Site data (GMT differential, longitude, and lunitidal interval) is configured correctly.
• The GMT differential is the time difference of the time zone where the site is located and Greenwich Mean Time.
• The lunitidal interval is the time elapsing between the Moon's transit over a meridian and the next high tide at that meridian. See "Lunitidal Interval" for more information.
• This watch displays lunitidal intervals in terms of hours and minutes.
• The "Site Data List" and "Lunitidal Interval List" provide GMT differential, longitude, and lunitidal interval information around the world.
• The following is the initial factory default Home Site data (Tokyo, Japan) when you first purchase the watch, whenever battery power drops to Level 4, and whenever you have the battery replaced. Change these settings to match the area where you normally use the watch.
GMT differential (+9.0); Longitude (East 140 degrees); Lunitidal interval (5 hours, 20 minutes)

To configure Home Site data
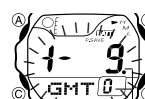
GMT differential

1. In the Timekeeping Mode, hold down Ⓐ until the seconds start to flash, which indicates the setting screen.
2. Press Ⓐ again to display the GMT differential setting screen.
3. Press Ⓒ to move the flashing in the sequence shown below to select other settings.

GMT differential → Longitude → Lunitidal Interval Hours → Lunitidal Interval Minutes

4. When the setting you want to change is flashing, use Ⓓ and Ⓑ to change it as described below.

Setting	Screen	Button Operations
GMT differential	**1- 9.** GMT 0	Use Ⓓ (+) and Ⓑ (–) to change the setting. • You can specify a value in the range of –11.0 to +14.0, in 0.5-hour unit.
Longitude	**1400** LON E	Use Ⓓ (+) and Ⓑ (–) to change the setting. • You can specify a value in the range of 179°W to 180°E, in 1-degree units.
Lunitidal Interval Hours, Minutes	**5:20** INT	Use Ⓓ (+) and Ⓑ (–) to change the setting.

5. Press Ⓐ to exit the setting screen.

Moon/Tide Data
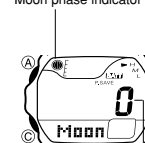
Moon phase indicator
Moon age

Moon/tide data lets you view the Moon age and Moon phase for a particular date, and tidal movements for a particular date and time for the Home Site.
• If you suspect that the Moon/tide data is not correct for some reason, check the Timekeeping Mode data (current time, date, and Home Site settings), and make changes as required.
• See "Moon Phase Indicator" for information about the Moon phase indicator and "Tide Graph" for information about the tide graph.
• All of the operations in this section are performed in the Moon/Tide Data Mode, which you enter by pressing Ⓒ.

1

Moon/Tide Data Screens

Each press of Ⓐ in the Moon/Tide Data Mode toggles between the Moon Data screen and the Tide Data screen.

Moon Data Screen

Moon phase indicator   *Moon age*

Month–Day

Press Ⓐ.

Tide Data Screen

Tide graph

Time

Year
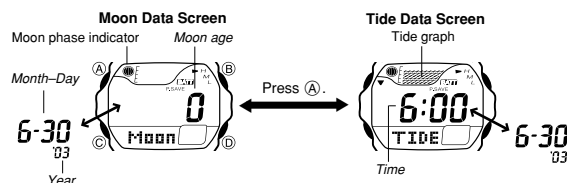
- When you enter the Moon/Tide Data Mode, the data that appears first is the Moon data (Moon age and Moon phase indicator) for the current date as kept by the Timekeeping Mode.

To view the Moon data for a particular date
While the Moon Data screen is displayed in the Moon/Tide Data Mode, use Ⓓ (+) and Ⓑ (–) to display the date whose Moon data you want to view.
- You can select any date from 2000 to 2039.

To view tide data for a particular time
1. While the Moon Data screen is displayed in the Moon/Tide Data Mode, use Ⓓ (+) and Ⓑ (–) to display the date whose tide data you want to view.
2. Press Ⓐ to switch to the Tide Data screen.
   - The initial screen shows the tide graph for 6:00 AM.
3. Specify the time for which you want to display tide data.
- Use Ⓓ (+) and Ⓑ (–) to change the time in one-hour steps.

World Time

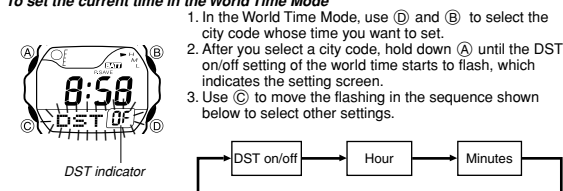Current time in the selected city code

City code

GMT differential
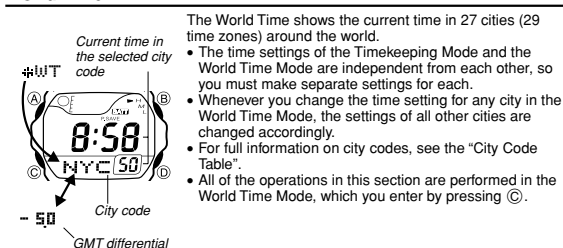
The World Time shows the current time in 27 cities (29 time zones) around the world.
- The time settings of the Timekeeping Mode and the World Time Mode are independent from each other, so you must make separate settings for each.
- Whenever you change the time setting for any city in the World Time Mode, the settings of all other cities are changed accordingly.
- For full information on city codes, see the "City Code Table".
- All of the operations in this section are performed in the World Time Mode, which you enter by pressing Ⓒ.

To view the time in another city code
In the World Time Mode, press Ⓓ to scroll through city codes (time zones) to the east or Ⓑ to scroll to the west.
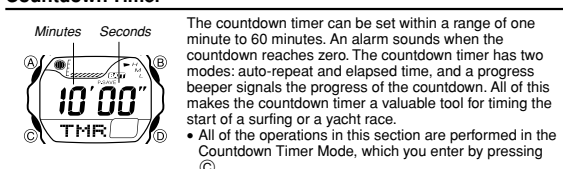
To set the current time in the World Time Mode
1. In the World Time Mode, use Ⓓ and Ⓑ to select the city code whose time you want to set.
2. After you select a city code, hold down Ⓐ until the DST on/off setting of the world time starts to flash, which indicates the setting screen.
3. Use Ⓒ to move the flashing in the sequence shown below to select other settings.

DST indicator

DST on/off → Hour → Minutes

4. When the setting you want to change is flashing, use Ⓑ and Ⓓ to change it as described below.

To change this setting	Perform this button operation
DST on/off	Press Ⓓ to toggle between Daylight Saving Time (**On**) and standard time (**OF**).
Hour, Minutes	Use Ⓓ (+) and Ⓑ (–) to change the setting.

- When setting the world time using the 12-hour format, take care to set the time correctly as a.m. (no indicator) or p.m. (**P** indicator).
5. Press Ⓐ to exit the setting screen.
- Note that you cannot switch between Standard Time and Daylight Saving Time while GMT is selected as the city code.
- Note that the DST/Standard Time setting affects only the currently displayed city code. Other city codes are not affected.
- The **DST** indicator is on the display whenever you display a city code for which Daylight Saving Time is turned on.

Countdown Timer

Minutes   Seconds

The countdown timer can be set within a range of one minute to 60 minutes. An alarm sounds when the countdown reaches zero. The countdown timer has two modes: auto-repeat and elapsed time, and a progress beeper signals the progress of the countdown. All of this makes the countdown timer a valuable tool for timing the start of a surfing or a yacht race.
- All of the operations in this section are performed in the Countdown Timer Mode, which you enter by pressing Ⓒ.

Configuring the Countdown Timer
The following are the settings you should configure before actually using the countdown timer.
  Countdown start time and reset time
  Timer mode (auto-repeat, elapsed time)
  Progress beeper on/off
- See "To configure the countdown timer" for information about setting up the timer.

Reset Time
You can set a "reset time," which is a kind of alternate countdown start time you can recall with the press of a button any time a countdown operation is in progress.

Timer Mode
The countdown timer gives you a choice of two modes: auto-repeat and elapsed time.

Auto-repeat
The auto-repeat mode automatically restarts the countdown from the countdown start time you set whenever zero is reached.
- The auto-repeat mode is best when timing the starts of match races.
- Even if you start a countdown operation from the reset time, the countdown automatically restarts from the countdown start time whenever it reaches zero.
- Auto repeat timing repeats up to seven times.

Elapsed Time
When the end of the countdown is reached in the elapsed time mode, the timer automatically switches to an elapsed time measurement operation.
- The elapsed time mode is best when timing the speed of yachts during ocean races.
- The elapsed time operation is performed in one-second increments up to 99 hours, 59 minutes, 59 seconds.

Countdown Timer Beeper Operations
The watch beeps at various times during a countdown so you can keep informed about the countdown status without looking at the display. The following describes the types of beeper operations the watch performs during a countdown.

Countdown End Beeper
The watch beeps each second of the final 10 seconds before a countdown reaches zero, and at zero. The watch emits a longer beep to signal when the countdown reaches zero.
- The countdown end beeper always sounds, regardless of the on/off status of the progress beeper.

Progress Beeper
The progress beeper actually includes two beepers: a reset time beeper and a reset period progress beeper.
- The reset time beeper and reset period progress beeper sound only while the progress beeper is turned on.
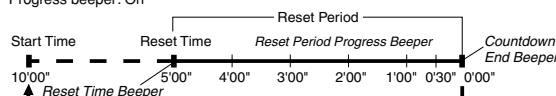
Reset Time Beeper
The reset time beeper is similar to the countdown end beeper. When the progress beeper is turned on, the watch beeps each second of the final 10 seconds before the countdown reaches the reset time.

Reset Period Progress Beeper
The reset period is the portion of the countdown between the reset time and zero. When the progress beeper is turned on, the watch emits four short beeps at the top of each minute during the reset period, and 30 seconds before the end of the countdown.

Countdown Timer Examples
Countdown start time: 10 minutes; Reset time: 5 minutes; Timer mode: Auto-repeat; Progress beeper: On

Reset Period

Start Time   Reset Time   *Reset Period Progress Beeper*   Countdown End Beeper

10'00"   5'00"   4'00"   3'00"   2'00"   1'00"   0'30"   0'00"

Reset Time Beeper

Countdown start time: 10 minutes; Reset time: 5 minutes; Timer mode: Elapsed time; Progress beeper: Off

Start Time   Reset Time   *Elapsed time measurement*

10'00"   5'00"   Countdown End Beeper   0'00"
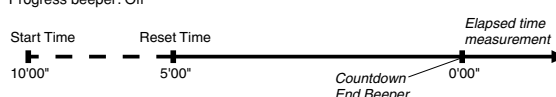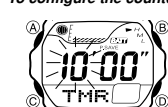
To configure the countdown timer
1. While the countdown start time is on the display in the Countdown Timer Mode, hold down Ⓐ until the countdown start time setting starts to flash, which indicates the setting screen.
   - If the countdown start time is not displayed, use the procedure under "To use the countdown timer" to display it.
2. Press Ⓒ to move the flashing in the sequence shown below to select other settings.

Start Time → Reset Time → Timer Mode → Progress Beeper
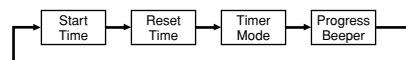
3. When the setting you want to change is flashing, use Ⓓ and Ⓑ to change it as described below.

Setting	Screen	Button Operations
Start Time		Use Ⓓ (+) and Ⓑ (–) to change the setting. - You can set a start time in the range of 1 to 60 minutes in 1-minute increments.
Reset Time		Use Ⓓ (+) and Ⓑ (–) to change the setting. - You can set a reset time in the range of 1 to 5 minutes in 1-minute increments.
Timer Mode		Press Ⓓ to toggle between the auto-repeat mode (**On**) and the elapsed time mode (**OFF**). - An auto-repeat indicator (↻) appears when the auto-repeat mode is selected.
Progress Beeper		Press Ⓓ to toggle progress beeper on (**On**) and off (**OFF**).

4. Press Ⓐ to exit the setting screen.
- The reset time setting must be less than the countdown start time setting.

To use the countdown timer
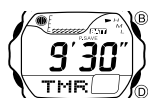
In the Countdown Timer Mode, press Ⓓ to start the countdown timer.
• The countdown timer measurement operation continues even if you exit the Countdown Timer Mode.
• The table below describes button operations you can perform to control countdown operations.

To do this:	Do this:
Stop the countdown operation	Press Ⓓ.
Resume a stopped countdown operation	Press Ⓓ again.
Display the countdown start time	While the countdown is stopped, press Ⓑ.
Stop the countdown operation and display the reset time	Press Ⓑ.
Start the countdown from the displayed reset time	Press Ⓓ.

• The table below describes button operations you can perform during an elapsed time measurement operation in the elapsed time mode.

| To do this:	Do this:
Stop the elapsed time operation	Press Ⓓ.
Resume a stopped elapsed time operation	Press Ⓓ again.
Display the countdown start time	While the elapsed time is stopped, press Ⓑ.
Stop the elapsed time operation and display the reset time	Press Ⓑ.
Start the countdown from the displayed reset time	Press Ⓓ.

Alarms

Alarm time (Hour : Minutes)

Alarm number
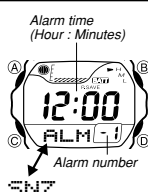
You can set five independent Daily Alarms. When an alarm is turned on, the alarm tone sounds when the alarm time is reached. One of the alarms can be configured as a snooze alarm or a one-time alarm, while the other four are one-time alarms.
You can also turn on an Hourly Time Signal that causes the watch to beep twice every hour on the hour.
• There are five alarm screens numbered ¦ through 5. The hourly time signal screen is indicated by :00.
• When you enter the Alarm Mode, the screen you were viewing when you last exited the mode appears first.
• All of the operations in this section are performed in the Alarm Mode, which you enter by pressing Ⓒ.

To set an alarm time

1. In the Alarm Mode, use Ⓓ to scroll through the alarm screens until the one whose time you want to set is displayed.

-1 → -2 → -3
:00 → -5 → -4
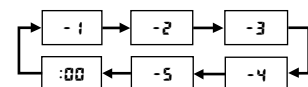
• You can configure Alarm ¦ as a snooze alarm or a one-time alarm. Alarms 2 through 5 can be used as one-time alarms only.
• The snooze alarm repeats every five minutes.
2. After you select an alarm, hold down Ⓐ until the hour setting of the alarm time starts to flash. This indicates the setting screen.
• This operation automatically turns on the alarm.
3. Press Ⓒ to move the flashing between the hour and minute settings.
4. While a setting is flashing, use Ⓓ (+) and Ⓑ (−) to change it.
• When setting the alarm time using the 12-hour format, take care to set the time correctly as a.m. (no indicator) or p.m. (P indicator).
5. Press Ⓐ to exit the setting screen.

Alarm Operation

The alarm sounds at the preset time for about 10 seconds. In the case of the snooze alarm, the alarm operation is performed a total of seven times, every five minutes, or until you turn the alarm off or change it to a one-time alarm.

Note

• Pressing any button stops the alarm tone operation.
• Performing any one of the following operations during a 5-minute interval between snooze alarms cancels the current snooze alarm operation.
  Displaying the Timekeeping Mode setting screen
  Displaying the Alarm ¦ setting screen

To test the alarm

In the Alarm Mode, hold down Ⓓ to sound the alarm.

To turn Alarms 2 through 5 on and off

One-time alarm on indicator

1. In the Alarm Mode, use Ⓓ to select a one-time alarm (alarm number 2 through 5).
2. Press Ⓑ to toggle the displayed alarm on and off.
• Turning on a one-time alarm (2 through 5) displays the one-time alarm on indicator (▮▮▮) on its screen.
• The one-time alarm on indicator is displayed in all modes.
• If any alarm is on, the alarm on indicator is shown on the display in all modes.

To select the operation of Alarm ¦

1. In the Alarm Mode, use Ⓓ to select Alarm ¦.
2. Press Ⓑ to cycle through the available settings in the sequence shown below.

Snooze alarm on indicator (SNZ ▮▮▮) and one-time alarm on indicator (▮▮▮)

▮▮▮	SNZ ▮▮▮	
One-time alarm on	Snooze alarm on	Alarm off
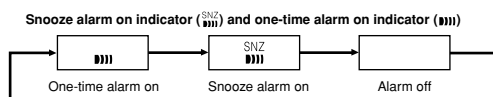
• The applicable alarm on indicator (▮▮▮ or SNZ▮▮▮) is displayed in all modes when an alarm is turned on.

• The snooze alarm on indicator (SNZ▮▮▮) flashes during the 5-minute intervals between alarms.
• Displaying the Alarm ¦ setting screen while the snooze alarm is turned on automatically turns off the snooze alarm (making Alarm ¦ a one-time alarm).
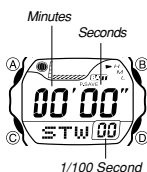
To turn the hourly time signal on and off

Hourly time signal on indicator

1. In the Alarm Mode, use Ⓓ to select the Hourly Time Signal.
2. Press Ⓑ to toggle it on and off.
• Turning on the Hourly Time Signal displays the hourly time signal on indicator (🔔) on its screen.
• The hourly time signal on indicator is displayed in all modes.
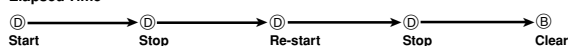
Stopwatch

Minutes *Seconds*
1/100 Second

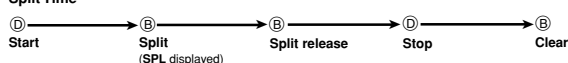The stopwatch lets you measure elapsed time, split times, and two finishes.
• The display range of the stopwatch is 59 minutes, 59.99 seconds.
• The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
• The stopwatch measurement operation continues even if you exit the Stopwatch Mode.
• Exiting the Stopwatch Mode while a split time is frozen on the display clears the split time and returns to elapsed time measurement.
• All of the operations in this section are performed in the Stopwatch Mode, which you enter by pressing Ⓒ.

To measure times with the stopwatch

Elapsed Time

Ⓓ	Ⓓ	Ⓓ	Ⓓ	Ⓑ
Start	Stop	Re-start	Stop	Clear

Split Time

Ⓓ	Ⓑ	Ⓑ	Ⓓ	Ⓑ
Start	Split (**SPL** displayed)	Split release	Stop	Clear

Two Finishes

Ⓓ	Ⓑ	Ⓓ	Ⓑ	Ⓑ
Start	Split	Stop	Split release	Clear
	First runner finishes. Display time of first runner.	Second runner finishes.	Display time of second runner.	

Backlight

Auto light switch on indicator

The backlight uses an EL (electro-luminescent) panel that causes the entire display to glow for easy reading in the dark. The watch's auto light switch automatically turns on the backlight when you angle the watch towards your face.
• The auto light switch must be turned on (indicated by the auto light switch on indicator) for it to operate.
• See "Backlight Precautions" for other important information about using the backlight.

To turn on the backlight manually

In any mode, press Ⓛ to illuminate the display for about one second.
• The above operation turns on the backlight regardless of the current auto light switch setting.

About the Auto Light Switch

Turning on the auto light switch causes the backlight to turn on for about one second, whenever you position your wrist as described below in any mode. Note that this watch features a "Full Auto EL Light," so the auto light switch operates only when available light is below a certain level. It does not turn on the backlight under bright light.

Moving the watch to a position that is parallel to the ground and then tilting it towards you more than 40 degrees causes the backlight to turn on.

Parallel to ground *More than 40°*
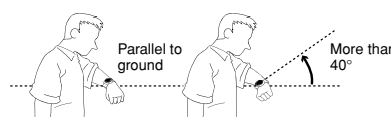
Warning!

• Always make sure you are in a safe place whenever you are reading the display of the watch using the auto light switch. Be especially careful when running or engaged in any other activity that can result in accident or injury. Also take care that sudden illumination by the auto light switch does not surprise or distract others around you.
• When you are wearing the watch, make sure that its auto light switch is turned off before riding on a bicycle or operating a motorcycle or any other motor vehicle. Sudden and unintended operation of the auto light switch can create a distraction, which can result in a traffic accident and serious personal injury.

To turn the auto light switch on and off

In the Timekeeping Mode, hold down Ⓓ for about two seconds to toggle the auto light switch on (AUTO displayed) and off (AUTO not displayed).
• The auto light switch on indicator (AUTO) is on the display in all modes while the auto light switch is turned on.

3

Battery

This watch is equipped with a solar cell and a rechargeable battery (secondary battery) that is charged by the electrical power produced by the solar cell. The illustration shown below shows how you should position the watch for charging.

Example: Orient the watch so its face is pointing at a light source.
- Note that charging efficiency drops when any part of the solar cell is blocked by clothing, etc.
- The illustration shows how to position a watch with a resin band.

Solar cell

Important!
- Storing the watch for long periods in an area where there is no light or wearing it in such a way that it is blocked from exposure to light can cause rechargeable battery power to run down. Be sure that the watch is normally exposed to bright light whenever possible.
- This watch employs a solar cell that converts light into electricity, which charges a built-in rechargeable battery. Normally, the rechargeable battery should not need replacement, but after very long use over a number of years, the rechargeable battery may lose its ability to achieve a full charge. Should you notice problems with getting the rechargeable battery to a full charge, contact your dealer or CASIO distributor about having the rechargeable battery replaced.
- The rechargeable battery should be replaced with a CASIO-specified CTL1616 battery only. Other rechargeable batteries can cause damage to the watch.
- All data stored in memory is deleted, and the current time and all other settings return to their initial factory defaults whenever battery power drops to Level 4 and when you have the battery replaced.
- Turn on the watch's Power Saving function and keep it in an area normally exposed to bright light when storing it for long periods. This helps to keep the rechargeable battery from going dead.

Battery Power Indicator
The battery power indicator on the display shows you the current status of the rechargeable battery's power.

Battery power indicator

Level	Battery Power Indicator	Function Status
1	BATT	All functions enabled.
2	BATT	All functions enabled.
3	CHARGE (Charge Soon Alert)	Beeper tone, backlight, display, and buttons are disabled.
4	BATT	All functions, including timekeeping, are disabled.

- The flashing **CHARGE** indicator at Level 3 tells you that battery power is very low, and that exposure to bright light for charging is required as soon as possible.
- At Level 4, all functions are disabled and settings return to their initial factory defaults. Functions are enabled once again after the rechargeable battery is charged, but you need to set the time and date, after the battery reaches Level 3 (indicated by flashing **CHARGE** indicator) from Level 4. You will not be able to set any of the other settings until the battery reaches Level 2 (no **CHARGE** indicator) after dropping to Level 4.
- Leaving the watch in direct sunlight or some other very strong light source can cause the battery power indicator to temporarily show a reading that is higher than the actual battery level. The correct battery power indicator should appear after a few minutes.
- If you use the backlight or any of the alarm functions a number of times during a short period, **RECOVER** appears on the display and the following operations become disabled until battery power recovers.
  Backlight
  Beeper tone
  After some time, battery power will recover and **RECOVER** will disappear, indicating that the above functions are enabled again.

Charging Precautions
Certain charging conditions can cause the watch to become very hot. Avoid leaving the watch in the areas described below whenever charging its rechargeable battery. Also note that allowing the watch to become very hot can cause its liquid crystal display to black out. The appearance of the LCD should become normal again when the watch returns to a lower temperature.

Warning!
Leaving the watch in bright light to charge its rechargeable battery can cause it to become quite hot. Take care when handling the watch to avoid burn injury. The watch can become particularly hot when exposed to the following conditions for long periods.
- On the dashboard of a car parked in direct sunlight
- Too close to an incandescent lamp
- Under direct sunlight

Charging Guide
After a full charge, timekeeping remains enabled for up to about 12 months, while the watch is used under the conditions described below.
Operating Conditions
- *Watch is not exposed to light*
- *Display on 18 hours per day, sleep state 6 hours per day*
- *1 backlight operation (1.5 seconds) per day*
- *10 seconds of alarm operation per day*
- *1 countdown timer operation per day*

Charge Times
Exposing the watch to light for the periods shown below each day restores the power used by the above operating conditions.

Exposure Level (Brightness)	Approximate Exposure Time
Outdoor Sunlight (50,000 lux)	5 minutes
Sunlight Through a Window (10,000 lux)	24 minutes
Daylight Through a Window on a Cloudy Day (5,000 lux)	48 minutes
Indoor Fluorescent Lighting (500 lux)	8 hours

- Stable operation is promoted by frequent charging.

Recovery Times
The table below shows the amount exposure that is required to take the battery from one level to the next.

Exposure Level (Brightness)	Approximate Exposure Time			
	Level 4	Level 3	Level 2	Level 1
Outdoor Sunlight (50,000 lux)	90 minutes		25 hours	7 hours
Sunlight Through a Window (10,000 lux)	6 hours		126 hours	35 hours
Daylight Through a Window on a Cloudy Day (5,000 lux)	11 hours		– – –	

- The above exposure time values are all for reference only. Actual required exposure times depend on lighting conditions.

Reference

This section contains more detailed and technical information about watch operation. It also contains important precautions and notes about the various features and functions of this watch.
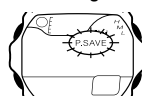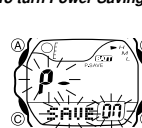
Power Saving Function
When turned on, the Power Saving function automatically enters a sleep state whenever the watch is left in an area where it is dark for 60 to 70 minutes. The sleep state is indicated by a blank screen with **P.SAVE** flashing on it. In the sleep state, all functions are enabled, except for the display.
- Wearing watch inside the sleeve of clothing can cause it to enter the sleep state.
- The watch will not enter the sleep state between 6:00 AM and 10:59 PM. If the watch is already in the sleep state when 6:00 AM arrives, however, it will remain in the sleep state.
- The watch will not enter the sleep state while it is in the Countdown Timer Mode or Stopwatch Mode.

To recover from the sleep state
Perform any one of the following operations.
- Move the watch to a well-lit area.
- Press any button.
- Angle the watch towards your face for reading.

To turn Power Saving on and off
1. In the Timekeeping Mode, hold down Ⓐ until the seconds start to flash, which indicates the setting screen.
2. Press Ⓒ eight times until the Power Saving on/off screen appears.
3. Press Ⓓ to toggle Power Saving on (**ON**) and off (**OF**).
4. Press Ⓐ twice to exit the setting screen.
- The Power Saving on indicator (**P.SAVE**) is on the display in all modes while the Power Saving is turned on.

Moon Phase Indicator
The Moon phase indicator of this watch indicates the current phase of the Moon as shown below.

(part you cannot see) — Moon phase (part you can see)

Moon Phase Indicator								
Moon Age	0, 1, 29	2 - 5	6 - 9	10 - 13	14 - 16	17 - 20	21 - 24	25 - 28
Moon Phase	New Moon		First Quarter (Waxing)		Full Moon		Last Quarter (Waning)	

- The Moon phase indicator shows the Moon as viewed at noon from a position in the Northern Hemisphere looking south. Note that at times the image shown by the Moon phase indicator may differ from that of the actual Moon in your area.
- The left-right orientation of the Moon phase is reversed when viewing from the Southern Hemisphere or from a point near the equator.

Moon Phases and Moon Age
The Moon goes through a regular 29.53-day cycle during which it appears to wax and wane due to how the Sun illuminates the Moon and the relative positioning of the Earth, Moon, and Sun. The greater the angular distance between the Moon and the Sun,* the more we see illuminated.
 The angle to the Moon in relation to the direction at which the Sun is visible from the Earth.
The Moon age indicates the number of days from the New Moon to any particular phase. It is normally calculated using either noon or midnight as a reference point. This watch calculates the Moon age based on the angular distance of the Moon at noon, which can result in an error of ± 1 day. Because of this, the appearance of the Moon phase indicator may be different from that of the actual Moon.
The watch uses the following formula to calculate Moon age.
Moon Age (days) = $29.53 \times$ (Moon angular distance / $360°$)

Tide Graph
The wave on the watch's tide graph indicates the current tide. ▲ indicates that the tide is currently rising, while ▼ indicates a falling tide. Neither ▲ nor ▼ is on the display at high tide and low tide.

High tide
Falling
Rising
Low tide

Tidal Movements
Tides are the periodic rise and fall of the water of oceans, seas, bays, and other bodies of water caused mainly by the gravitational interactions between the Earth, Moon and Sun. Tides rise and fall about every six hours. The tide graph of this watch indicates tidal movement based on the Moon's transit over a meridian and the lunitidal interval. The lunitidal interval differs according to your current location, so you must specify a lunitidal interval in order to obtain the correct tide graph readings.

Lunitidal Interval

Theoretically, high tide is at the Moon's transit over the meridian and low tide is about six hours later. Actual high tide occurs somewhat later, due to factors such as viscosity, friction, and underwater topography. Both the time differential between the Moon's transit over the meridian until high tide and the time differential between the Moon's transit over the meridian until low tide are known as the "lunitidal interval." When setting the lunitidal interval for this watch, use the time differential between the Moon's transit over the meridian until high tide.

Auto Return Feature

- If you leave a screen with flashing digits on the display for two or three minutes without performing any operation, the watch automatically saves any settings you have made up to that point and exits the setting screen.
- If you leave the watch in the Moon/tide Data Mode and Alarm Mode for two or three minutes without performing any operation, it automatically changes to the Timekeeping Mode.

Data and Setting Scrolling

The Ⓑ and Ⓓ buttons are used in various modes and setting screens to scroll through data on the display. In most cases, holding down these buttons during a scroll operation scrolls through the data at high speed.

Timekeeping

- Resetting the seconds to ⏹⏹ while the current count is in the range of 30 to 59 causes the minutes to be increased by 1. In the range of 00 to 29, the seconds are reset to ⏹⏹ without changing the minutes.
- With the 12-hour format, the ρ (PM) indicator appears on the display for times in the range of noon to 11:59 p.m. and no indicator appears for times in the range of midnight to 11:59 a.m.
- With the 24-hour format, times are displayed in the range of 0:00 to 23:59, without any indicator.
- The year can be set in the range of 2000 to 2039.
- The watch's built-in full automatic calendar makes allowances for different month lengths and leap years. Once you set the date, there should be no reason to change it except when battery power drops to Level 4.

World Time

- The seconds count of the World Time is synchronized with the seconds count of the Timekeeping Mode.
- The GMT differential is the time difference between the time zone where the city is located and Greenwich Mean Time.
- GMT differential is calculated by this watch based on Universal Time Coordinated (UTC) data.

Backlight Precautions

- The electro-luminescent panel that provides illumination loses power after very long use.
- The illumination provided by the backlight may be hard to see when viewed under direct sunlight.
- The watch may emit an audible sound whenever the display is illuminated. This is due to vibration of the EL panel used for illumination, and does not indicate malfunction.
- The backlight automatically turns off whenever an alarm sounds.
- Frequent use of the backlight runs down the battery.

Auto light switch precautions

- Wearing the watch on the inside of your wrist, as well as movement or vibration of your arm can cause the auto light switch to activate and illuminate the display. To avoid running down the battery, turn off the auto light switch whenever engaging in activities that might cause frequent illumination of the display.

More than 15 degrees too high

- The backlight may not light if the face of the watch is more than 15 degrees above or below parallel. Make sure that the back of your hand is parallel to the ground.
- The backlight turns off in about one second, even if you keep the watch pointed towards your face.
- Static electricity or magnetic force can interfere with proper operation of the auto light switch. If the backlight does not light, try moving the watch back to the starting position (parallel with the ground) and then tilt it back toward you again. If this does not work, drop your arm all the way down so it hangs at your side, and then bring it back up again.
- Under certain conditions, the backlight may not light until about one second after you turn the face of the watch towards you. This does not necessarily indicate malfunction of the backlight.
- You may notice a very faint clicking sound coming from the watch when it is shaken back and forth. This sound is caused by mechanical operation of the auto light switch, and does not indicate a problem with the watch.

City Code Table

City Code	City	GMT Differential	Other major cities in the same time zone
		−11.0	
HNL	HONOLULU	−10.0	PAPEETE
ANC	ANCHORAGE	−9.0	NOME
LAX	LOS ANGELES	−8.0	VANCOUVER, SAN FRANCISCO, LAS VEGAS, SEATTLE, DAWSON CITY
DEN	DENVER	−7.0	EL PASO, EDMONTON
CHI	CHICAGO	−6.0	MEXICO CITY, HOUSTON, DALLAS/FORT WORTH, NEW ORLEANS, WINNIPEG
NYC	NEW YORK	−5.0	MIAMI, MONTREAL, DETROIT, BOSTON, PANAMA CITY, HAVANA, LIMA, BOGOTA
CCS	CARACAS	−4.0	LA PAZ, SANTIAGO, PORT OF SPAIN
RIO	RIO DE JANEIRO	−3.0	SAO PAULO, BUENOS AIRES, BRASILIA, MONTEVIDEO
– – –		−2.0	
– – –		−1.0	AZORES, PRAIA
GMT LON	LONDON	+0.0	DUBLIN, LISBON, CASABLANCA, DAKAR, ABIDJAN
PAR	PARIS	+1.0	MILAN, ROME, BERLIN, MADRID, FRANKFURT, AMSTERDAM, VIENNA, ALGIERS, STOCKHOLM, HAMBURG

City Code	City	GMT Differential	Other major cities in the same time zone
CAI	CAIRO	+2.0	ISTANBUL, ATHENS, HELSINKI, BEIRUT, DAMASCUS, CAPE TOWN
JRS	JERUSALEM		
JED	JEDDAH	+3.0	MOSCOW, KUWAIT, RIYADH, ADEN, ADDIS ABABA, NAIROBI
THR	TEHRAN	+3.5	SHIRAZ
DXB	DUBAI	+4.0	ABU DHABI, MUSCAT
KBL	KABUL	+4.5	
KHI	KARACHI	+5.0	MALE
DEL	DELHI	+5.5	MUMBAI, KOLKATA
DAC	DHAKA	+6.0	COLOMBO
RGN	YANGON	+6.5	
BKK	BANGKOK	+7.0	JAKARTA, PHNOM PENH, HANOI, VIENTIANE
HKG	HONG KONG	+8.0	SINGAPORE, KUALA LUMPUR, TAIPEI, PERTH, BEIJING, MANILA, ULAANBAATAR
TYO	TOKYO	+9.0	SEOUL, PYONGYANG
ADL	ADELAIDE	+9.5	DARWIN
SYD	SYDNEY	+10.0	GUAM, MELBOURNE, RABAUL
NOU	NOUMEA	+11.0	PORT VILA
WLG	WELLINGTON	+12.0	CHRISTCHURCH, NADI, NAURU ISLAND

- Based on data as of June 2002.

Site Data List

Site	GMT Differential		Longitude	Latitude
	Standard Time	DST/Summer		
ABIDJAN	0.0	1.0	4°W	5°N
ABU DHABI	4.0	5.0	54°E	24°N
ADDIS ABABA	3.0	4.0	39°E	9°N
ADEN	3.0	4.0	45°E	13°N
AMSTERDAM	1.0	2.0	5°E	52°N
ANCHORAGE	−9.0	−8.0	150°W	61°N
ATHENS	2.0	3.0	24°E	38°N
AZORES	−1.0	0.0	25°W	38°N
BANGKOK	7.0	8.0	100°E	14°N
BEIJING	8.0	9.0	116°E	40°N
BEIRUT	2.0	3.0	35°E	34°N
BOGOTA	−5.0	−4.0	74°W	5°N
BOSTON	−5.0	−4.0	71°W	42°N
BRASILIA	−3.0	−2.0	48°W	16°S
BUENOS AIRES	−3.0	−2.0	58°W	35°S
CAPE TOWN	2.0	3.0	18°E	34°S
CARACAS	−4.0	−3.0	67°W	10°N
CASABLANCA	0.0	1.0	8°W	34°N
CHICAGO	−6.0	−5.0	88°W	42°N
CHRISTCHURCH	12.0	13.0	173°E	43°S
DAKAR	0.0	1.0	17°W	15°N
DALLAS FORT WORTH	−6.0	−5.0	97°W	33°N
DAMASCUS	2.0	3.0	36°E	33°N
DENVER	−7.0	−6.0	105°W	40°N
DETROIT	−5.0	−4.0	83°W	42°N
DHAKA	6.0	7.0	90°E	24°N
DUBAI	4.0	5.0	55°E	25°N
DUBLIN	0.0	1.0	6°W	53°N
EDMONTON	−7.0	−6.0	114°W	54°N
EL PASO	−7.0	−6.0	106°W	32°N
FORT WORTH	−6.0	−5.0	97°W	33°N
FRANKFURT	1.0	2.0	9°E	50°N
GOLD COAST	10.0	11.0	154°E	28°S
GUAM	10.0	11.0	145°E	13°N
HAMBURG	1.0	2.0	10°E	54°N
HANOI	7.0	8.0	106°E	21°N
HELSINKI	2.0	3.0	25°E	60°N
HONG KONG	8.0	9.0	114°E	22°N
HONOLULU	−10.0	−9.0	158°W	21°N
HOUSTON	−6.0	−5.0	95°W	30°N
ISTANBUL	2.0	3.0	29°E	41°N
JAKARTA	7.0	8.0	107°E	6°S
JEDDAH	3.0	4.0	39°E	21°N
KARACHI	5.0	6.0	67°E	25°N
KUALA LUMPUR	8.0	9.0	102°E	3°N
KUWAIT	3.0	4.0	48°E	29°N
LA PAZ	−4.0	−3.0	68°W	17°S
LAS VEGAS	−8.0	−7.0	115°W	36°N
LIMA	−5.0	−4.0	77°W	12°S
LISBON	0.0	1.0	9°W	39°N
LONDON	0.0	1.0	0°E	51°N
LOS ANGELES	−8.0	−7.0	118°W	34°N
MADRID	1.0	2.0	4°W	40°N
MANILA	8.0	9.0	121°E	15°N
MELBOURNE	10.0	11.0	145°E	38°S
MEXICO CITY	−6.0	−5.0	99°W	19°N
MIAMI	−5.0	−4.0	80°W	26°N
MILAN	1.0	0.0	9°E	45°N
MONTEVIDEO	−3.0	−2.0	56°W	35°S
MONTREAL	−5.0	−4.0	74°W	45°N
MUSCAT	4.0	5.0	58°E	23°N
NADI	12.0	13.0	178°E	18°S
NAIROBI	3.0	4.0	37°E	1°S
NAURU ISLAND	12.0	13.0	166°E	1°S
NEW ORLEANS	−6.0	−5.0	90°W	30°N
NEW YORK	−5.0	−4.0	74°W	41°N
NOME	−9.0	−8.0	165°W	65°N

CASIO®

Site	GMT Differential		Longitude	Latitude
	Standard Time	DST/Summer		
NOUMEA	11.0	12.0	166°E	22°S
PAGO PAGO	−11.0	−10.0	171°W	14°N
PANAMA CITY	−5.0	−4.0	80°W	9°N
PAPEETE	−10.0	−9.0	150°W	18°S
PARIS	1.0	2.0	2°E	49°N
PERTH	8.0	9.0	116°E	32°N
PHNOM PENH	7.0	8.0	105°E	12°N
PORT OF SPAIN	−4.0	−3.0	61°W	11°N
PORT VILA	11.0	12.0	168°E	18°S
PRAIA	−1.0	0.0	23°W	15°N
PYONGYANG	9.0	10.0	126°E	39°N
RIYADH	3.0	4.0	47°E	25°N
ROME	1.0	2.0	12°E	42°N
SAN FRANCISCO	−8.0	−7.0	122°W	38°N
SANTIAGO	−4.0	−3.0	71°W	33°S
SAO PAULO	−3.0	−2.0	47°W	24°S
SEATTLE	−8.0	−7.0	122°W	48°N
SEOUL	9.0	10.0	127°E	38°N
SHANGHAI	8.0	9.0	121°E	31°N
SINGAPORE	8.0	9.0	104°E	1°N
STOCKHOLM	1.0	2.0	18°E	59°N
SYDNEY	10.0	11.0	151°E	34°S
TAIPEI	8.0	9.0	122°E	25°N
TOKYO	9.0	10.0	140°E	36°N
ULAANBAATAR	8.0	9.0	107°E	48°N
VANCOUVER	−8.0	−7.0	123°W	49°N
VIENNA	1.0	2.0	16°E	48°N
VIENTIANE	7.0	8.0	103°E	18°N
WELLINGTON	12.0	13.0	175°E	41°S
WINNIPEG	−6.0	−5.0	97°W	50°N

• *Based on data as of June 2001.*

Lunitidal Interval List

Site	Lunitidal Interval	Site	Lunitidal Interval
ANCHORAGE	5:40	LIMA	5:20
BANGKOK	4:40	LISBON	2:00
BOSTON	11:20	LONDON	1:10
BUENOS AIRES	6:00	LOS ANGELES	9:20
CASABLANCA	1:30	MANILA	10:30
DAKAR	7:40	MELBOURNE	2:10
GOLD COAST	8:30	MIAMI	7:30
HAMBURG	4:50	NOUMEA	8:30
HONG KONG	9:10	PAGO PAGO	6:40
HONOLULU	3:40	PANAMA CITY	3:00
JAKARTA	0:00	PAPEETE	0:10
JEDDAH	6:30	SEATTLE	4:20
KARACHI	10:10	SHANGHAI	1:20
SINGAPORE	10:20	VANCOUVER	5:10
SYDNEY	8:40	WELLINGTON	4:50

• *Based on data as of June 2001.*